

CLAIMS

1. Device for concentrating and/or purifying macromolecules in a liquid by filtration through a membrane comprising:

- 5 (a) at least one concentration chamber adapted to receive and contain a liquid containing macromolecules to be processed, each of said at least one concentration chamber being provided with at least one first
- 10 aperture;
- (b) at least one filtrate chamber provided with at least one second aperture arranged over said at least one first aperture;
- (c) at least one membrane having a feed side and a permeate side, said membrane being
- 15 fluid-tight along its periphery and situated over at least one of said first and second apertures and separating said at least one concentration chamber and
- 20 said at least one filtrate chamber;
- (d) gasket means arranged around at least one of said first and second apertures and in contact with at least one side of said at least one membrane;
- 25 (e) membrane support means on said at least one filtrate chamber for supporting the permeate side of said at least one membrane; and

(f) a pressure-resistant sleeve arranged around said at least one concentration chamber, said gasket means, said at least one membrane and said at least one
5 filtrate chamber, said sleeve exerting and maintaining sufficient compressive forces to seal said at least one membrane fluid-tight against at least one of said chambers.

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2. The device of claim 1 wherein said sleeve comprises two parts.

3. The device of claim 1 wherein said sleeve
15 comprises one part.

4. The device of claim 1 wherein said gasket means is an O-ring.

20 5. The device of claim 1 wherein said gasket means is in the form of a ridge of elastic material and is integral with at least one of said concentration chamber and said filtrate chamber.

25 6. The device of any of claims 1-5 wherein said sleeve is generally cylindrical and has an inner surface selected from tapered and conical and wherein at least one of said concentration and filtrate chambers has

a corresponding outer surface selected from tapered and conical, said inner and outer surfaces creating said compressive forces when said sleeve is assembled around said at least one concentration chamber, said at least
5 one filtrate chamber, said gasket means and said at least one membrane.

7. The device of claim 1 with a plurality of concentration and filtrate chambers in substantial
10 alignment and adapted to receive and process a plurality of liquid samples.

8. The device of claim 7 adapted to matingly engage the receptacles of a micro titer plate.
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9. A method for manufacturing a device for concentrating and/or purifying macromolecules in a liquid by means of filtration through at least one membrane which device comprises at least one concentration chamber
20 for a liquid sample to be processed provided with at least one first aperture, at least one filtrate chamber provided with at least one second aperture, at least one membrane that is fluid-tight along its periphery and situated over at least one of said first and second
25 apertures so as to separate said at least one concentration and filtrate chambers, said method comprising the following steps:

- (a) arranging gasket means around at least one of said apertures;
- (b) covering at least one of said apertures with at least one membrane, each having a feed side and a permeate side with its feed side arranged against at said least one concentration chamber and its permeate side against said at least one filtrate chamber;
- (c) assembling said chambers so as to align said at least one first aperture over said at least one second aperture; and
- (d) fitting a pressure-resistant sleeve around said at least one concentration chamber, said gasket means, said at least one membrane and said at least one filtrate chamber so as to create and maintain compressive forces sufficiently high to seal said at least one membrane fluid-tight against at least one of said concentration and filtrate chambers.